MR4027

Automotive Transient Voltage Suppressor

20 V – 27 V

Designed for Automotive Applications (Alternator) requiring Reverse Avalanche Capability for use as Transient Voltage Suppressor. Developed to suppress transients in automotive systems, this device operates in the forward mode as Standard Rectifier or in Reverse as Transient Voltage Suppressor for Centralized Protection.

For further information referring to Mounting or Operating Conditions, contact your nearest ON Semiconductor Sales Representative.

ON Semiconductor™

http://onsemi.com

N SUFFIX
(Anode to Cup)
P SUFFIX
(Cathode to Cup)
CASE 193A

Mechanical Characteristics

- Finish: 100% Tin Plated
  All External Surfaces are Corrosion Resistant
- Weight: 2.6 Grams (Approximately)

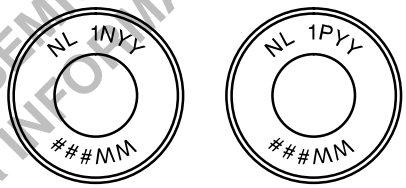
Packaging/Labeling

- Two Sealed Bags into a Cardboard Box
- Device Number Labeled on the Bag

Marking

- The Devices are Laser Marked on the Epoxy Surface

MARKING DIAGRAM



NL = Location Code
1N or 1P = Device Code and Polarity
YY = Year
WW = Work Week
= Assembly Lot Number

MAXIMUM RATING

Rating	Symbol	Value	Unit
DC Blocking Voltage	V_R	18	Volts
Average Forward Current (Single Phase, Resistive Load, T_C = 185°C)	I_O	40	Amps
Peak Repetitive Reverse Surge Current (Time Constant = 10 ms, T_C = 25°C) (Time Constant = 80 ms, T_C = 25°C)	I_{RSM} I_{RSM}	110 50	Amps
Non−Repetitive Peak Surge Current (Halfwave, Single Phase, 50 Hz)	I_{FSM}	500	Amps
Storage Temperature Range	T_{stg}	−40 to +200	°C
Maximum Operating Junction Temperature	T_J	200	°C

ORDERING INFORMATION

Device	Package	Shipping
MR4027N	Button Can	5000 Units/Box
MR4027P	Button Can	5000 Units/Box

THERMAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Thermal Resistance Junction to Case	$R_{\theta JC}$	0.4	°C/W

ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Min	Max	Unit
Instantaneous Forward Voltage (Note 1.) (I_F = 100 Amps, T_C = 25°C)	v_F	–	1.1	Volts
Reverse Current (Note 1.) (V_R = 16 Vdc, T_C = 25°C)	I_R	–	1.0	μA
Breakdown Voltage (Note 1.) (I_R = 100 mA, T_C = 25°C)	$V_{(BR)}$	20	27	Volts
Breakdown Voltage (I_R = 80 Amps, T_C = 25°C, PW = 80 μs) (I_R = 80 Amps, T_C = 85°C, PW = 80 μs)	$V_{(BR)}$	 – –	 35 37	Volts
Breakdown Voltage Temperature Coefficient	$V_{(BR)TC}$	0.095*		%/°C
Forward Voltage Temperature Coefficient (I_F = 10 mA)	V_{FTC}	−2*		mV/°C

1. Pulse Test: Pulse Width < 300 μs, Duty Cycle < 2%.
**Typical

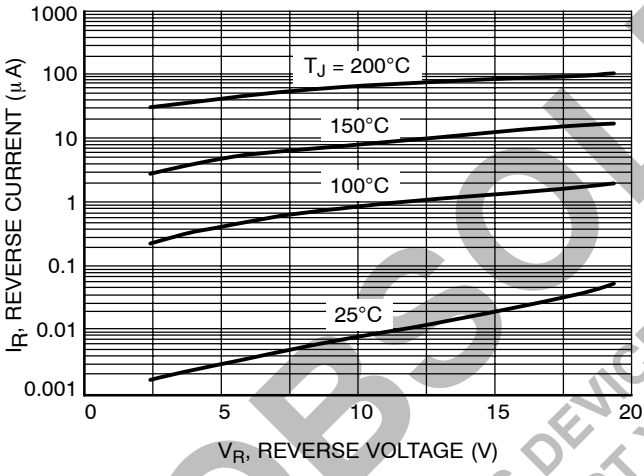


Figure 1. Typical Reverse Current

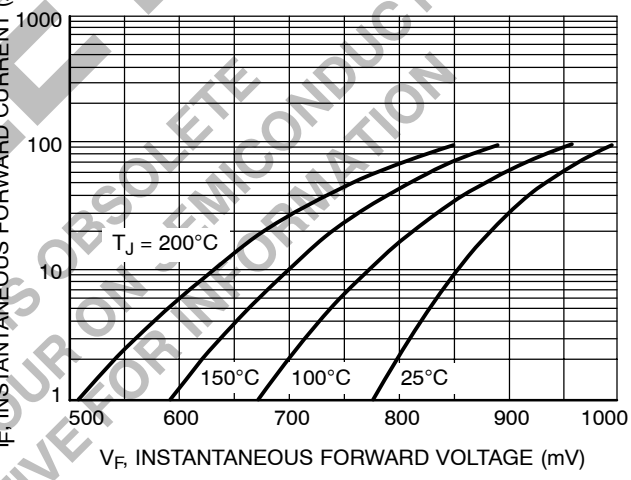


Figure 2. Typical Forward Voltage

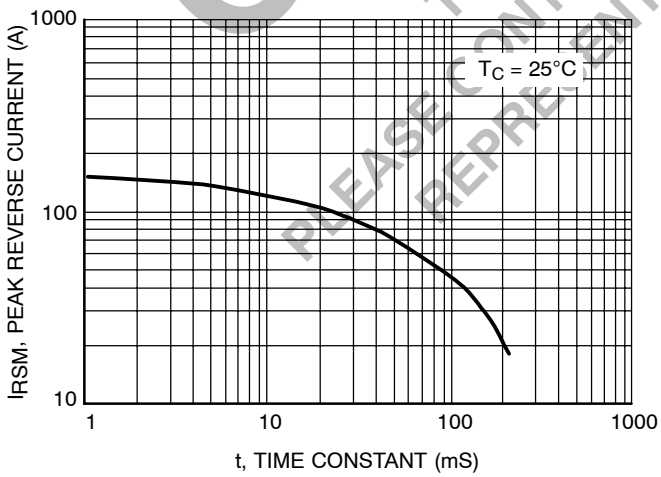


Figure 3. Maximum Peak Reverse Current

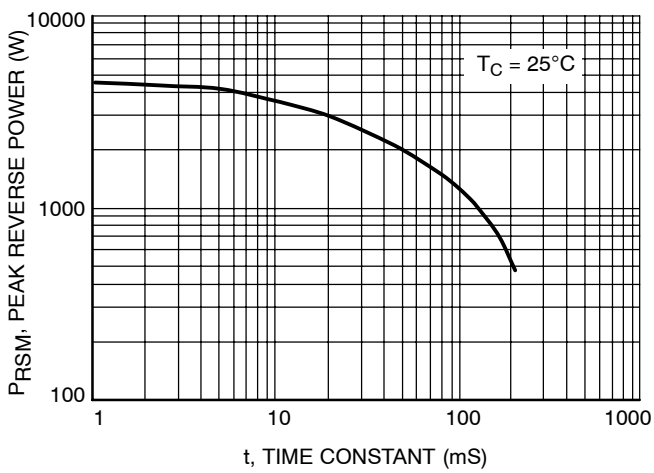


Figure 4. Maximum Peak Reverse Power

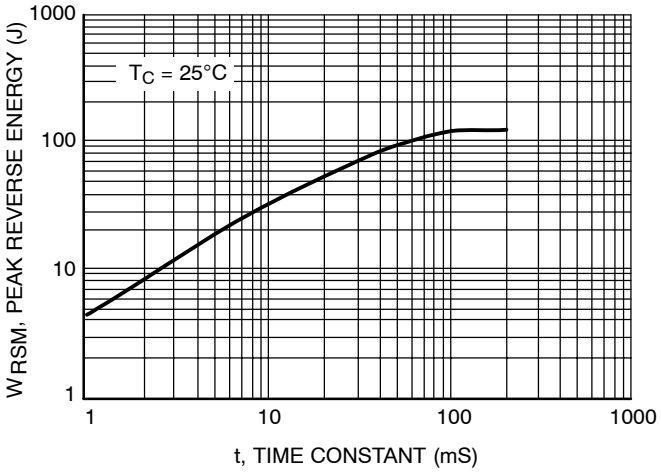


Figure 5. Maximum Reverse Energy

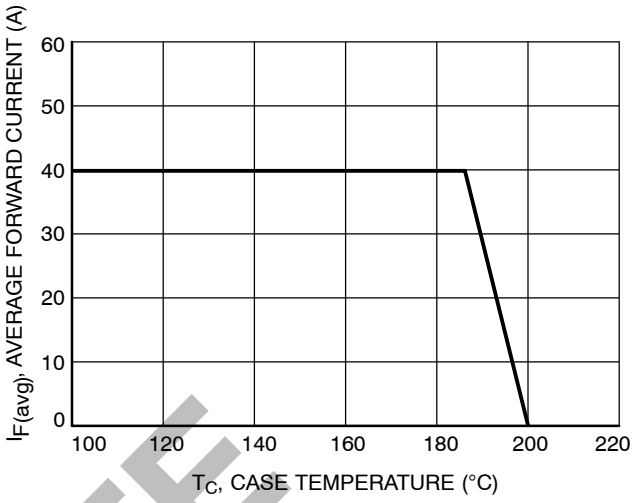


Figure 6. Maximum Current Rating

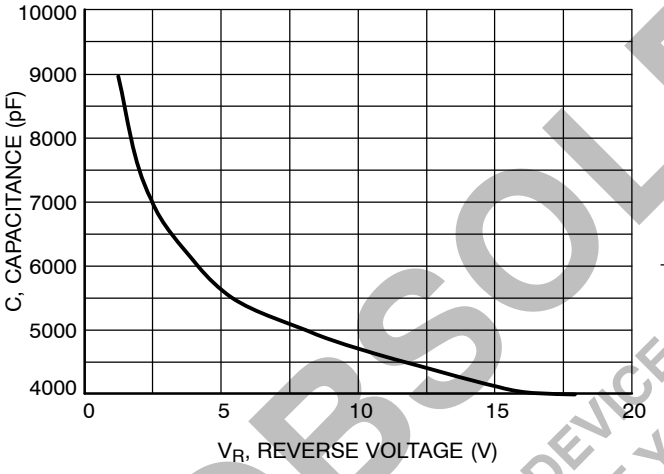


Figure 7. Typical Capacitance

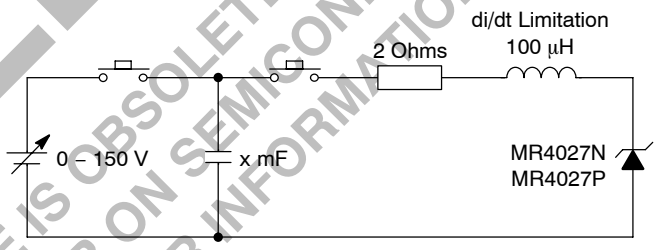


Figure 8. Load Dump Test Circuit

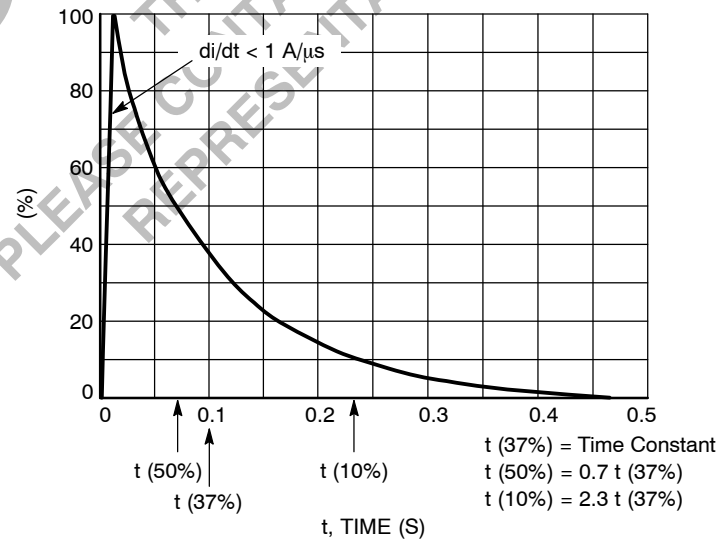
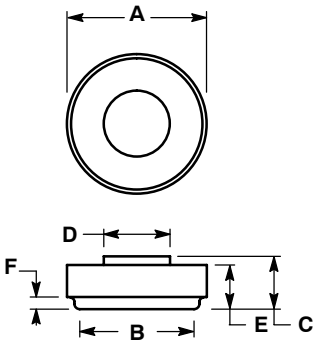


Figure 9. Load Dump Pulse Current

PACKAGE DIMENSIONS

N SUFFIX
(Anode to Cup)
P SUFFIX
(Cathode to Cup)
CASE 193A−02
ISSUE A



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.

	MILLIMETERS		INCHES	
DIM	MIN	MAX	MIN	MAX
A	11.4	11.6	0.449	0.457
B	9.3	9.7	0.366	0.382
C	4.3	4.9	0.169	0.193
D	5.4	5.6	0.213	0.220
E	3.6	4.2	0.142	0.165
F	1.0	2.0	0.039	0.079

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
P.O. Box 5163, Denver, Colorado 80217 USA
Phone: 303−675−2175 or 800−344−3860 Toll Free USA/Canada
Fax: 303−675−2176 or 800−344−3867 Toll Free USA/Canada
Email: orderlit@onsemi.com

N. American Technical Support: 800−282−9855 Toll Free USA/Canada
Europe, Middle East and Africa Technical Support:
Phone: 421 33 790 2910
Japan Customer Focus Center
Phone: 81−3−5773−3850

ON Semiconductor Website: **www.onsemi.com**

Order Literature: http://www.onsemi.com/orderlit

For additional information, please contact your local Sales Representative